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ABSTRACT

The purpose of this guide is to assist specifiers in properly specifying carpet made of Monsanto Ultron advanced generation nylon fiber. The guide describes a variety of conditions that should be considered in arriving at the proper selection and provides reference information and data, ranging from varying regulatory requirements, performance and construction technology, to special requirements that include quality installation and proper maintenance. (Author/MLF)

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CARPET SPECIFIERS GUIDE

9.27/Mo

ULTRON

ADVANCED GENERATION NYLON

CARPET FIBER

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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EA 008 782

Monsanto has long been a leader in the contract carpet fiber industry. With Acrilan® Plus. With Acrilan® 2000+. The same extensive research development, and testing that created each of these, has now produced an innovative new advanced generation nylon carpet fiber especially engineered for the contract carpet market. It's Ultron® nylon.

Inside this specification guide is a discussion of Ultron, its performance characteristics, and their application in the contract market. We have similar specification material available on Acrilan acrylic which we'd be happy to forward to you. To get this information, or to get additional copies of the following Ultron specification guide, just send requests to the Monsanto address shown in the next column.

INTRODUCTION

The purpose of this guide is to assist specifiers in properly specifying carpet made of Monsanto Ultron advanced generation nylon fiber. Carpet is recognized as a standard floor covering material in both commercial and residential applications and, therefore, it is imperative that the specifier understand the basic factors affecting a sound carpet selection.

This guide will describe a variety of conditions that should be considered in arriving at the proper selection. Every effort has been made to provide the specifier with reference information and data, ranging from varying regulatory requirements, performance and construction technology to special requirements that include quality installation and proper maintenance, essential to successful carpet performance.

Monsanto has a professional staff anxious to advise and counsel you about carpeting and carpet fibers—their selection and maintenance. Should you have any questions about contract carpeting or mill resources, please contact us: Monsanto Textiles Company, 320 Interstate North Parkway, Atlanta, Georgia 30339 (404) 955-4000.

With the introduction of Ultron® advanced generation nylon carpet fiber, Monsanto has achieved an outstanding balance of performance properties which meets the most stringent requirements for carpet yarns. These performance properties include: longer effective life, superior soil resistance and soil hiding and effective control of static electricity build-up below the threshold of sensitivity in low humidity environments.

The unique technology behind Ultron achieves these performance properties without sacrificing the aesthetic assets of bulk, luster, color clarity, and resilience.

The ultimate carpet, one that never wears out, never soils, never shocks, and always looks new, is obviously, impossible to achieve in the present state of the art. However, with the introduction of Ultron, Monsanto has taken still another giant step toward the ultimate carpet.

Ultron continuous filament yarn is a 6,6 nylon that has a carefully formulated polymer system and cross section design that make it highly resistant to the abrasion that wears out carpets and to the soiling that makes them look old before their time. The polymer incorporates a proprietary additive that (1) makes the yarns less transparent, thus reducing the magnification of soil particles, (2) reduces the tendency of certain types of soil to stick to the nylon, and (3) lowers build-up of static electricity, thus inhibiting attraction of dirt particles. The cross sectional shapes of each Ultron fiber (see illustration below.) minimize the "nooks and crannies" where dirt particles may be trapped, enabling much of the deposited soil to be removed by routine vacuuming. The multi-lobal structure aids in resisting abrasive wear with the added advantage of exceptional bulk which gives maximum resistance to crushing and matting.

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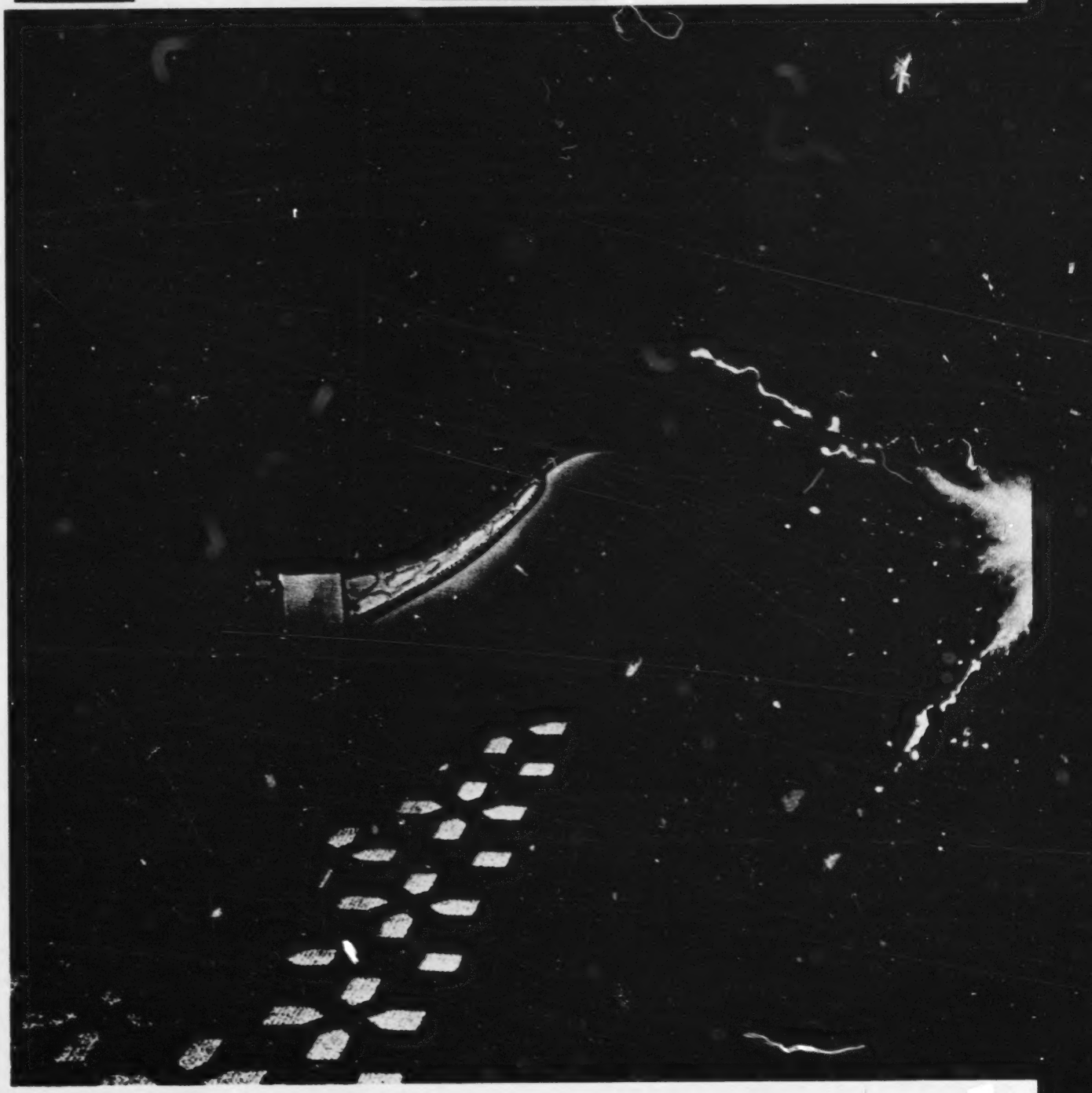

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REGULATORY REQUIREMENTS

When selecting carpet for most commercial and institutional installations, a major concern is, of course, the various governmental regulations that apply to a specifier's particular installation.

There are several strict federal standards regarding flammability and other performance certification requirements that must be met for carpeting to be used in hospitals, schools, hotels, dormitories, and certain residential developments.

These standards are set and enforced by agencies ranging from the Department of Commerce to the U.S. Public Health Service. In addition, there may be even more stringent requirements established by a client or institution. Testing procedures and acceptable ratings can vary depending on the purpose the carpet is to serve on the jurisdiction of the originating agency.

Fiber type alone does not assure compliance with regulatory requirements. Other factors, such as pile height and density, type of latex and type of backing in combination play crucial roles. It is fact that Ultron® nylon fiber is being used in carpet constructions that meet or exceed most regulatory requirements.

Flammability Testing

Although the general implication of flammability connotes the degree of ease of ignition or rapidity of burning, in actual practice flammability carries a meaning only with respect to performance of a product subjected to a specified test. When determining flammability of carpet, any of a number of tests may be designated.

NOTE: *Classes A to D pertain to flammability ratings only and do not relate to smoke density.

METHENAMINE TABLET TEST—U.S. DEPARTMENT OF COMMERCE DOC FF I-70 OR ASTM STANDARD D-2859-70T

This test determines the resistance to ignition and the surface flammability of carpets when exposed to a small standard source of ignition (a timed, burning methenamine tablet) in a draft-protected (free) environment. If two or more of the eight carpet specimens burn three inches in any direction, the carpet fails the test. All carpets offered for sale in the United States must pass this test.

STEINER TUNNEL TEST—PUBLIC HEALTH SERVICE & LIFE SAFETY CODE STANDARD ASTM E-84-70

This test subjects carpet specimens to a heavy flame source and uses flame spread as a comparative measure. Carpet samples 25 feet long by 1 ft. 8 in. wide, mounted pile down on the ceiling of a test tunnel, are subjected to heat and flame in a temperature range of 1600° to 1800°F (871°C to 982°C), under standard draft conditions. Test duration is 10 minutes or until sample has burned out completely, whichever is first. Progress of flame along length of test sample is observed every 15 seconds and the greatest distance of flame-spread is then used to calculate flame-spread rating. A flame-spread rating of 75 or less is necessary for floor coverings used in hospitals which receive funds through the Hill-Burton Act. Other flame-spread classifications defined by the NFPA Life Safety Codes are:

0-25	Class A*
26-75	Class B*
76-200	Class C*
201-500	Class D*

Measures of smoke density are also taken during burning test. A smoke density rating of 200 has been used in several specifications, although a national standard has not been set.

When the Floor Chamber Test UL or the Radiant Panel Flooring Flammibility Test is used as a measure of flame spread, the NBS Smoke Chamber Test is often used as a method of measuring smoke density.

The standard is a maximum of 450 as an average of the flaming and nonflaming results.

FLOOR CHAMBER TEST UL SUBJECT 992

(While this is not currently a required federal regulatory test, it has been proposed by HEW that it be accepted as an alternative test method of E-84.) This test uses flame-propagation as its measure. Sample is placed on floor and subjected to a flame under a draft for 12 minutes, after which the burner is shut off and the flame is allowed to propagate an additional 12 minutes. A Flame Propagation Index limit of four or less (corresponds to 26-75 range of Steiner Tunnel Test) has been set in several specifications. The Index rating is reported in whole numbers between 0-25.

RADIANT PANEL FLOORING FLAMMABILITY TEST

(Proposed federal regulatory test.) This test is being developed for possible replacement of E-84 Steiner Tunnel Test and the UL992 Chamber Test. It measures flame-spread of carpets exposed to Radiant energy and flame. Samples are tested in the normal end use configuration.

Carpet specimen is exposed to a radiant heat flux that decreases along the length of the specimen. The specimen is ignited at the highest heat flux end and allowed to burn until it will not support flaming combustion. The radiant heat flux at the point the flame extinguishes is recorded as critical heat flux. The heat flux is expressed in watts/cm^2 Pass-fail heat flux level of 0.5 watts/cm^2 or higher is recommended for corridors and exit ways in hospitals and other institutions; 0.25 watts/cm^2 is recommended** for corridors and exit ways in other buildings.

NOTE: **The National Bureau of Standards proposed the Flooring Radiant Panel test be used for non-sprinkled corridors and primary exit ways. The methenamine pill test would be used for room carpet and sprinkled corridors. At this writing the recommendation has not yet been accepted.

Performance Certification

In an attempt to improve performance characteristics directly related to construction elements of carpeting, the following federal regulation has been established.

MATERIALS BULLETIN UM-44C

(For HUD-funded projects only). Sets forth standards for carpet and carpet certification program for residential structures and nursing and elderly homes under the jurisdiction of the Department of Housing and Urban Development and the Federal Housing Administration.

All carpets offered for the "FHA Market" must be certified by a HUD approved administrator. The manufacturer must imprint on the back of the carpet every three to six feet the following:

1. Certification mark of the administrator.
2. Manufacturer name or code number.
3. Identity of quality name or code number.

The administrators are required to publish and distribute a directory of certified products at least twice annually with monthly supplements.

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SPECIFICATION TECHNOLOGY

A specification should be written based on total performance and not simply construction. A performance specification tells the manufacturer what the carpet must do without telling him how it must be made. This will give competing manufacturers the flexibility of submitting a fabric that will render the desired end-use characteristics. Extensive testing of Ultron® reveals the following performance characteristics.

Durability

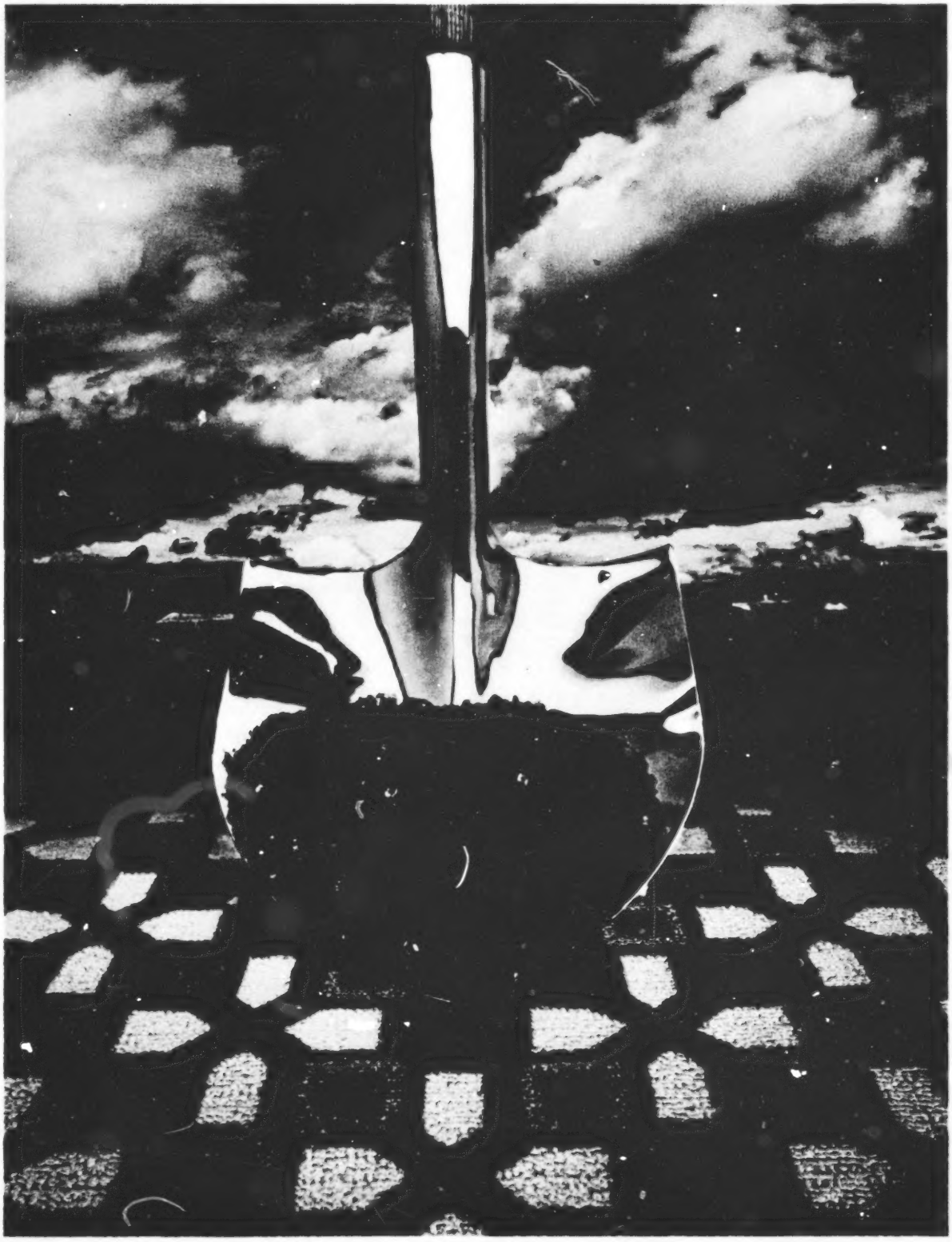
In the world of carpeting, durability can be a confusing word because it means different things depending on who is using it. Durability, to some carpet fiber manufacturers, means the ability of a carpet to resist abrasion and, thus, last a long time.

At Monsanto, when we use the word durability, we mean that and more. We mean the ability of a carpet to retain a good appearance as long as it lasts. There is quite a difference between the two meanings.

WEAR RESISTANCE

Resistance to abrasion created by foot traffic, rolling equipment, and furniture movement relates to durability but does not by itself determine the useful life of a carpet. The determination of whether a carpet is functionally acceptable is still a subjective matter. One good laboratory method for measuring abrasion resistance is by use of the Taber Abraser. The carpet sample, cut into a five-inch disc, rotates on a turntable beneath a multidirectional rubbing action of a specified pressure and coarseness. Test results are based on the number of cycles required to abrade the pile fiber completely to the primary backing.

Care should be taken when making comparisons between competitive fabrics that the same machine utilizing controlled conditions of pressure and abrasive action is employed.



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Appearance Retention

The ability of a carpet to retain a good appearance as long as it lasts is the true measure of its effective life. Appearance retention qualities are inherent in properly constructed carpet made with pile fiber of Ultron® nylon. These qualities are:

SOIL AND STAIN RESISTANCE

Carpets of Ultron have the ability to resist soiling because of the proprietary additive in the polymer and because of the fiber's cross section design. The attraction of dirt particles is inhibited. The tendency of certain types of soil to "stick" to the fiber is reduced, and the soiling that does occur is actually hidden because the yarns are less transparent and do not magnify the dirt particles. Cleaning is easy because the "nooks and crannies" of the fiber have been minimized, making dirt more easily dislodged and removed.

RESILIENCE

The multi-lobal structure of Ultron nylon provides exceptional bulk which gives maximum resistance to crushing and matting from both heavy static loads and high-traffic loads. This high degree of resilience keeps carpeting from developing traffic lanes as well as deep indentations from heavy furniture. A most dramatic test of this resilience was the exposure of Ultron carpet in Grand Central Station to a million plus traffic level. The carpet exhibited exceptional performance in terms of height retained and compressed thickness.

COLOR RETENTION

Atmospheric contaminants such as ozone and other gases are a major contributor to color fading. Ultron is a type 6,6 nylon with a less open physical structure which provides resistance to gaseous penetration and thus aids in color stability. Proper dye selection and fixation will assure color clarity through resistance to fading, crocking, and repeated cleanings. Accepted industry test procedures to determine the measure of colorfastness are:

ATMOSPHERIC FADING (AATCC* 129)

This test determines the color change of the carpet when exposed to ozone gas in the atmosphere under high humidities. A shade change rating of at least 3** after 3 cycles exposure is desired.

NOTE: *AATCC—American Association of Textile Chemists and Colorists.

**International Gray Scale Ratings:

5—no change
4—slightly changed
3—noticeably changed
2—considerably changed
1—much changed

LIGHTFASTNESS (AATCC*-16E)

This method determines the colorfastness of textile materials to light in a xenon arc Fade-Ometer. After material is exposed to 60 "AATCC Fading Units" and judged visually for change, a Gray Scale rating of at least 4** is desired.

CROCKING (AATCC* 8)

This test determines the degree of color transfer from the carpet to a white cloth that is rubbed across the face of the carpet in a standard fashion. After 20 friction cycles, the color-transference is rated visually on AATCC Chromatic Transference Scale. Results should be 4** or above.

SHAMPOOING (AATCC* 138)

A measure of the color change caused by severe shampooing. Test specimens are rated visually on Gray Scale Standard. Results should not be below 4**

MAINTAINABILITY

While Ultron® is outstanding in its ability to resist dirt and stains, routine maintenance is still necessary. The real test of maintainability is the ability of the carpet to be restored to its near original appearance after having been in use in a given location.

At every stage of development, Ultron carpets were carefully tested by diverse evaluation procedures. They were cleaned by commercial procedures and spot cleaned after being subjected to soiling, water spotting and stubborn carpet stains. After cleaning, a procedure was used to determine resoil tendencies.

The excellent restorability of Ultron carpets to a near original appearance truly distinguished this advanced generation nylon.

Static Control

Monsanto engineers developed Ultron nylon to have highly effective control of static. With its polymer system and with a conductive element added to the yarn bundle, Ultron carpets, when constructed in accordance with Monsanto recommendations, will effectively keep static build-up well below the 3,000 volt sensitivity level. An effective test method to determine the static propensity of carpets is—I. F. WALKER METHOD—AATCC—134. This test induces and measures static build-up on carpets by simulating use conditions under which static electricity may become objectionable. Peak charge generation (at 70°F and 20% relative humidity) developed by walking or shuffling traffic, is monitored under carefully regulated conditions and related to the threshold range of charge above which objectionable shock may be experienced. A standard of 3.0 kilovolts, maximum, should keep static discharge below the human shock level. For areas with delicate electronic equipment, you should consult the equipment manufacturer for effective static control levels.

NOTE: *AATCC—American Association of Textile Chemists and Colorists.

**International Gray Scale Ratings:

5—no change
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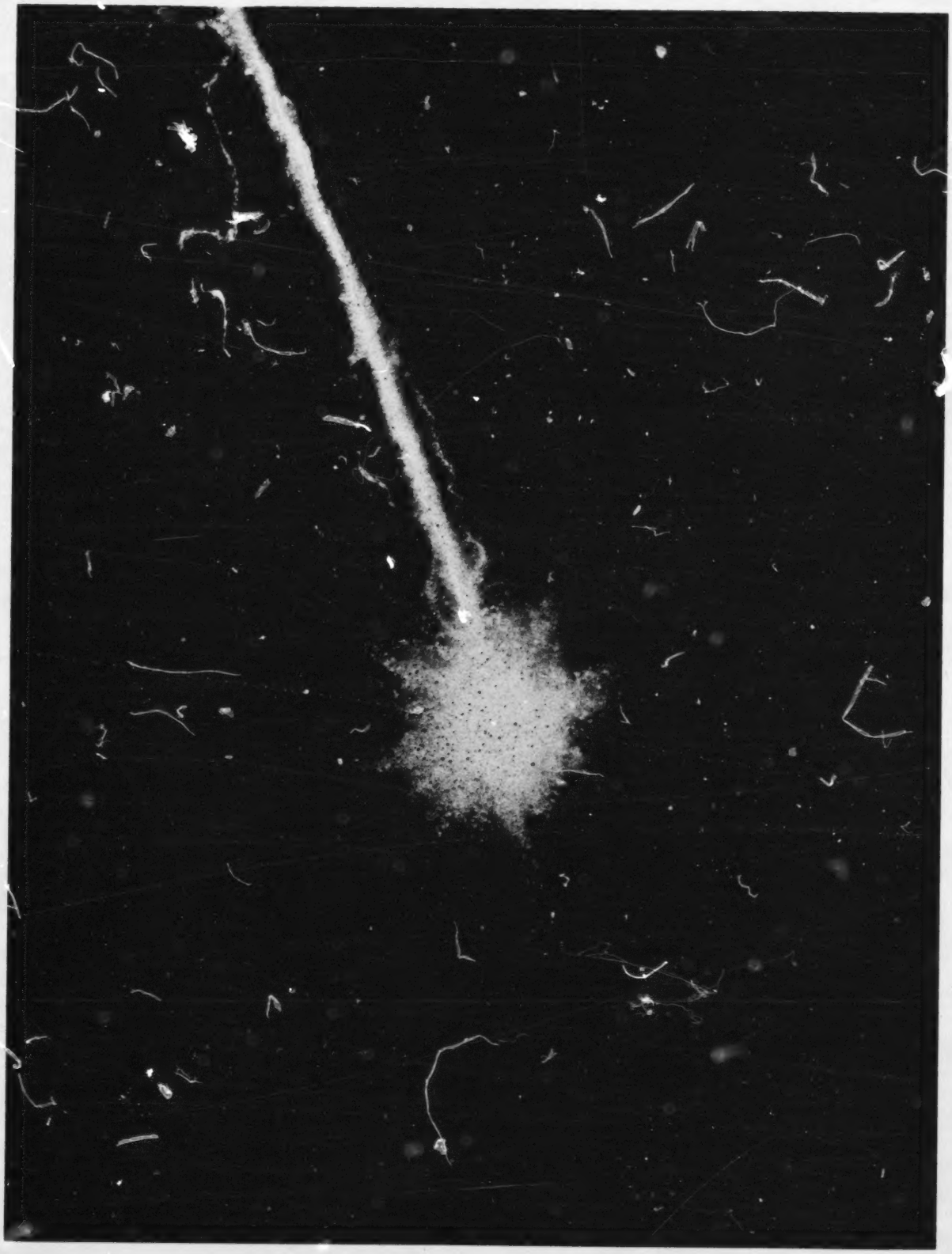
2—considerably changed
1—much changed



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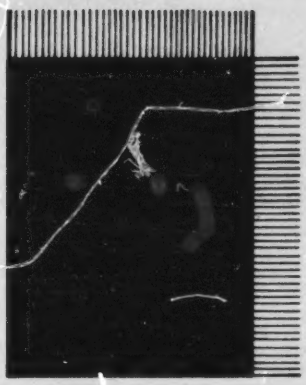
CARPET CONSTRUCTION CHARACTERISTICS

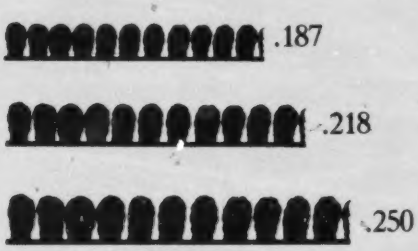
A carpet construction specification prescribes how a carpet is to be manufactured without reference to its end use or performance. Here are the construction criteria you will look at most closely.

Magnification continuous filament yarn



Number of tufts per sq. inch is determined by multiplying needles corresponding to a particular pitch or gauge by rows or stitches per inch. Example: 1/8 gauge, 8 needles times 8 stitches per inch equals 64 tufts per square inch.

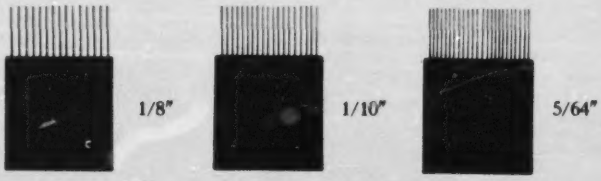
PILE HEIGHT



WIRE HEIGHT

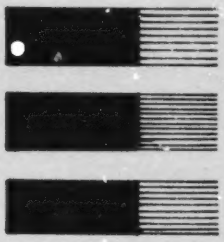
GAUGE (Tufted Fabric)

The distance between two needle points expressed in fractions of an inch.



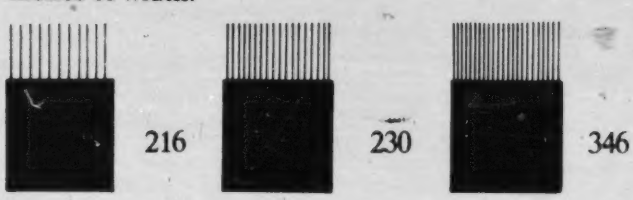
STITCHES

The number of lengthwise yarn tufts in one inch of carpet.



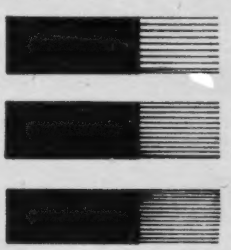
PITCH (Woven Fabric)

The number of single ends per 27 inches of width.



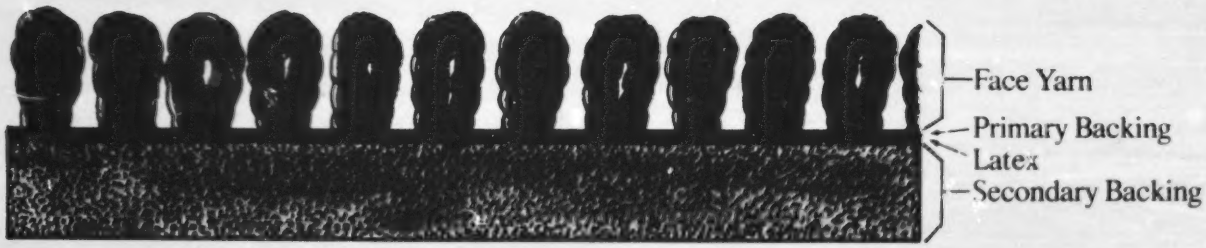
ROWS

The number of lengthwise yarn tufts in one inch of carpet.



Pitch to Gauge Conversions

Pitch	108	143.9	172.8	180	189	216	243	252	256	270	346
Needles	4	5.3	6.4	6.6	7	8	9	9.3	9.5	10	12.8
Gauge	1/4	3/16	5/32		9/64	1/8	1/9			1/10	5/64



FACE FIBER

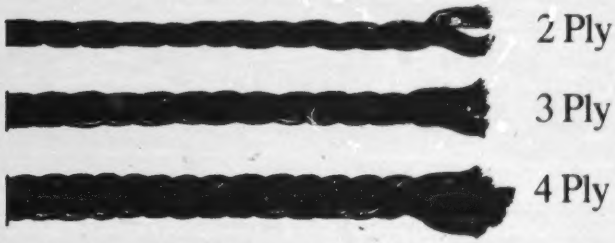
"the face yarn of carpet shall be pile of 100% 'Ultron' advanced generation nylon" or "the face yarn shall be advanced generation soil hiding, static resistant nylon fiber."

Pile Weight per Square Yard

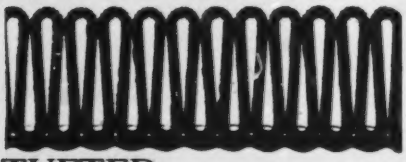
Pile weight is measured in ounces per square yard. It is the amount of yarn used in the pile of the carpet, excluding the primary backing.

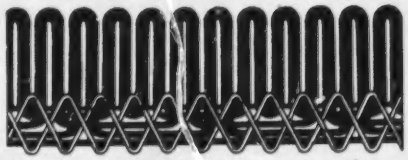
Total Weight
Pile weight + Latex + Backing
= Total Weight

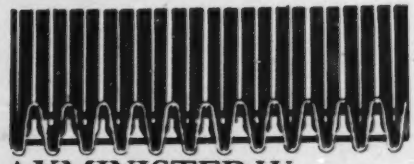
YARN PLY

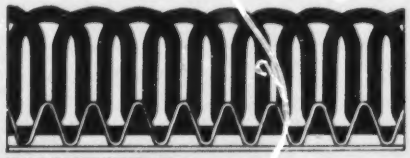


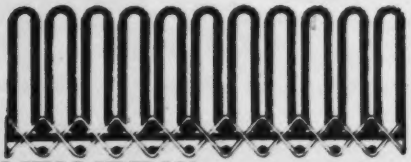
CONSTRUCTION METHODS

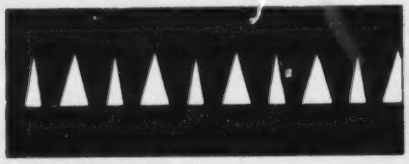

TUFTED


WILTON Weave


AXMINISTER Weave


KNITTED


VELVET Weave


FUSE-BONDED

SPECIAL REQUIREMENTS

BUDGET

The carpeting budget is usually the first item to be trimmed when budgets are being reviewed. Carpet takes as much abuse as any building material on the market and thus should be selected based on the performance requirements, not solely on a budgeted figure.

Ultron® nylon was engineered with "use cost" savings in mind. Longer effective life plus a high degree of soil hiding means reduced maintenance cost.

TEXTURE

Texture can be achieved by varying pile height, by a combination of cut and uncut tufts and by yarn size and construction. It should be noted that texture should never become more important than function. Under heavy traffic conditions and where roll casters are used, a low pile height, high density, level loop construction is recommended.

COLOR

Your color specification may be determined by function of area to be carpeted, by traffic, by the need to create a mood or atmosphere, by the color of the soil in your locality, or by a combination of all these factors. In general, the lighter colors, pale golds and off-whites, will exhibit soil more readily and require more frequent cleaning. This should be considered when planning colors for heavy traffic area.

TUFT BIND

A measure of how well the individual tufts are held in the structure of a carpet. The force required to pull the tuft out of the face of the carpet is determined utilizing Test Method ASTM D-1335 expressed in pounds. Tuft bind is obtained by proper application of the back coating. A single tuft should withstand a minimum of 6-8 pounds of force for most end use applications. Monsanto recommends a higher tuft bind when the possibility of deliberate ravelling exists such as in grade school installations.

Traffic Classification

Typical traffic levels of commercial and institutional installations are listed below. Determination of the traffic conditions of your installation will be most helpful in developing specification criteria. (L-M) denotes light-medium traffic, (H) denotes heavy traffic.

CARPETED AREAS	TRAFFIC RATING
EDUCATIONAL+	
1. Schools & Colleges	
a. administration	L-M
b. classroom	H
c. dormitory	H
d. corridor	H*
e. cafeteria	H
f. libraries	L-M
2. Museums & Art Galleries	
a. display room	H
b. executive	L-M
c. lobby	H
MEDICAL+	
1. Health Care	
a. executive	L-M
b. patients room	H
c. lounge	H
d. nurses station	H
e. corridor	H*
f. lobby	H
COMMERCIAL+	
1. Banks	
a. executive	L-M
b. lobby	H
c. teller windows	H
d. corridors	H*
2. Retail Establishments	
a. aisle	H*
b. check-out	H
c. sales counter	H
d. smaller boutiques, etc.	H
e. window & display area	L-M
3. Office Buildings	
a. executive	L-M
b. clerical	H
c. corridor	H*
d. cafeteria	H
4. Supermarkets	H
5. Food Services	H

CARPETED AREAS	TRAFFIC RATING
RECREATIONAL+	
1. Recreation Areas	H
a. club house	H
b. locker room	H
c. swimming pool	H
d. recreational vehicles	H
e. boats	H
2. Theaters & Stadiums (Indoors)	H
3. Convention Centers	
a. auditorium	H
b. corridor	H*
c. lobby	H
TRANSPORTATION+	
1. Terminals	
a. corridor	H*
b. administration	L-M
c. ticket counter	H
MULTI-RESIDENTIAL+	
1. Apartments, Hotels & Motels	
a. lobby/public areas	H*
b. corridors	H
c. rooms	L-M
RELIGIOUS+	
1. Churches/Temples	
a. worship	L-M
b. meeting room	H
c. lobby	H

+Major Construction Categories

*If objects are to be rolled over an area of carpet, the carpet should be of maximum density to provide minimum resistance to rollers. For safety, select only level loop or low, level dense cut pile.

Density

Basically, density is a measure of the weight per unit volume of the face fiber in the carpet. By definition, it can be seen that this takes into consideration the height of the pile above the carpet backing as well as the weight of the yarn in a square yard of the face pile.

Obviously the denser the pile, the less weight each tuft of yarn must support. Therefore, carpets of denser pile generally give greater resistance to crushing and longer wear. The mathematical formula for calculating density and weight density is listed below:

$$\text{FHA DENSITY} = \frac{36 \times \text{Pile Wt.}}{\text{Pile height}}$$

EXAMPLE

$$\frac{36 \times 28 \text{ Oz.}}{.187} = 5390$$

WT. DENSITY = FHA Density = Pile Yarn Weight

EXAMPLE: 539() × 28 oz. = 150,920

Typical face weight and recommended maximum pile height constructions are listed below along with the density factor:*

PILE WEIGHT	PILE HEIGHT	DENSITY
16 oz./yd.	.125	4608
20 oz./yd.	.140	5143
22 oz./yd.	.156	5077
24 oz./yd.	.187	4620
26 oz./yd.	.203	4610
28 oz./yd.	.218	4624
30 oz./yd.	.250	4320

Assuming that the yarn denier remains the same and the same machine gauge is employed, a drop in the pile height requires an increase in the stitches per inch to obtain the same face weight fabric. This will also increase the density.

EXAMPLE: 30 oz fabric with a .250 pile height—decrease pile height to .218—density factor is increased from 4320 to 4954.

*Recommendations are for Ultron® nylon carpets.

Installation Requirements

Often the carpet specifications relate directly to the type of installation. You'll want to specify a reliable, proven installation procedure that meets the requirements of the area involved. Factors to consider before making a final decision include:

1. Traffic Classification in terms of load and nature (foot traffic, wheeled equipment, etc.).
2. Acoustical requirements, heat transfer factor, and resiliency.
3. Dimensional stability.
4. Condition and type of subfloor.
5. Budget.

There are basically two types of commercial carpet installation methods. A specification will include one or both of the following techniques depending on the size of the area to be carpeted and the attributes you expect from the carpeting.

STRETCH-IN—TACKLESS

This is the conventional method of installing carpet by power stretching over a separate cushion. A padded carpet installation offers superior sound control, resilience, and added foot comfort.

This method is not recommended for large open areas where shifting and buckling could present a problem or in areas where heavy wheeled traffic is anticipated.

A tackless strip of water resistant plywood is employed to securely fasten the carpet to the floor.

DIRECT GLUE DOWN

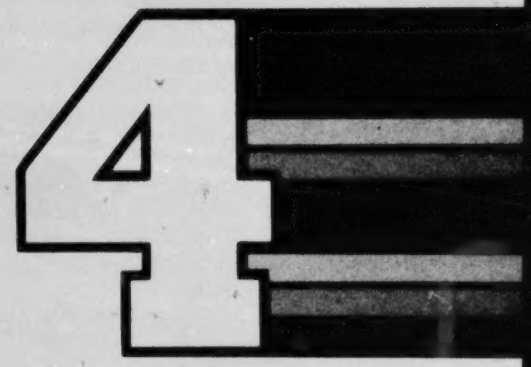
This method is recommended for large areas where heavy, wheeled traffic is anticipated and for maximum carpet stability. When the carpet is adhered directly to the floor, shifting and buckling is minimized and restretching is seldom necessary. This method also significantly reduces seam splitting and delamination problems. The initial cost of this method will usually be lower since padding purchase and padding installation are eliminated. You can minimize any loss of resilience, thermal and acoustical control by specifying correct pile density.

The direct glue down method will usually involve three basic types of carpet backing products: conventional back products—either jute or non-woven synthetic secondary back, an attached cushion back—usually high density foam rubber, or a unitary back—those finished with latex, polyvinyl chloride, or polyurethane compounds.

This method has been used effectively on all types of subflooring ranging from below-grade concrete, on-grade concrete, suspended concrete, suspended wood to existing resilient floors. Preparation of the subfloor is of primary importance when specifying this method.

SEAMING

The three main methods of seaming are heat seams, sewn seams, and latex seams. Regardless of seaming method used, all edges along seam must be sealed to prevent face yarn unravelling. Factors that influence location of seams are traffic, pile lay, economy in cutting/sewing and client satisfaction.



Maintenance

Programmed maintenance is the key to retaining the original appearance and texture of the carpet and thus extending the life expectancy. Maintenance is just as important to the life and appearance of carpet as fiber content, type of construction and method of installation. Regardless of the method used, the purpose is to keep the soil content to a minimum.

Since maintenance is so important, it should be considered and planned for before the carpet is even installed and the cost of maintenance, in terms of labor and equipment, should be considered as part of the total life cycle costing.

PLANNING

Just as your choice of fabric is based on the amount and type of traffic in a particular area, so is carpet maintenance in direct relation to the amount and type of traffic. Therefore, you can plan basic maintenance programs and schedules and purchase correct equipment during the specification period.

EQUIPMENT

Good carpet cleaning equipment is indispensable to an effective maintenance program. The type of equipment necessary will depend on the area to be cleaned and the cleaning frequencies required. The basic types of maintenance can be grouped into the following categories:

1) Preventive
2) Interim
3) Restoration

The following maintenance methods and equipment suggestions will help prolong the life of your carpet:

PREVENTIVE MAINTENANCE

Major carpet wear or abrasion is caused primarily by "dirt" and not foot traffic. Dry soil, i.e. sand, grit and other particles that are transported by foot traffic, have sharp cutting edges that when pressed repeatedly against the fiber can do extensive damage to the pile.

WALK-OFF MATS

As a matter of preventive maintenance, one method of reducing the amount of dry soil is to install walk-off mats at all entrances to collect dirt before it reaches the carpet inside. There are a number of commercially acceptable walk-off mats on the market. It is important that these mats be cleaned or changed frequently to maintain their effectiveness.

VACUUMING

Vacuuming methods and frequencies are fairly standard, but desirable frequencies are more difficult to establish. They depend to a great extent on the general layout of your project, the type of business it houses, the color of carpeting, traffic load and the type of outside soil commonly brought in by traffic.

A commercial upright vacuum machine with a beater action to agitate the soil from within the pile so it can be pulled out is recommended. Various size units are available for congested areas as well as the large open areas.

SPOT AND STAIN REMOVAL

Stains, usually resulting from accidental spillage, represent the greatest cleaning challenge. Identification and immediate action are the keys to effective stain removal procedures. The longer a stain sets, the more difficult it may be to remove. There are many excellent commercial spot removal kits on the market for the custodian to use. Most require no mixing or special skills and are very effective on almost any stain.

The use of walk-off mats, proper vacuuming and spot or stain removal are the essential daily requirements that represent the preventive aspects of the total maintenance program.

INTERIM MAINTENANCE

The interim maintenance procedures are primarily intended to surface clean and improve the appearance of the carpeting during the interim periods between major cleaning. These techniques are very effective in the high traffic areas.

PILE LIFTING

Prior to any carpet cleaning process, the carpet should be thoroughly vacuumed. A pile lifter (heavy duty vacuum with rotating brushes) is recommended to loosen caked solids and restore crushed pile. This will precondition the carpet to allow greater exposure of pile fiber for cleaning.

DRY COMPOUND CLEANING

There are three basic systems that are commonly used for interim maintenance: Absorbent dry cleaning compounds impregnated with solvents are used to absorb surface dirt. Compound is worked into the face fiber with a stiff brush or mechanically agitated. After the compound has dried completely it is vacuumed up.

DRY FOAM CLEANING

Dry foam machines are equipped with a pressure tank into which a detergent solution is poured. A compressor then converts the solution into a relatively dry foam fed through a revolving cylindrical brush. The brush thoroughly combs the foam through the pile to clean each tuft.

ROTARY BRUSH CLEANING

Applying a detergent solution with a rotary brush machine is the most commonly used method of wet cleaning carpet. Detergent is fed through a rotating brush which is about 16 inches in diameter. The brush agitates the solution into the carpet pile. It is important that the detergent "mix" which is applied be lots more foam than water to prevent over wetting. Most professional cleaners recommend following the shampoo immediately with wet pick-up vacuum to reduce drying time and remove suspended dirt. In addition, Monsanto testing has found that the use of dry absorbant pads used beneath the rotating brush after shampooing will greatly reduce the drying time.

RESTORATIVE MAINTENANCE

When carpet looks dirty or is no longer restored to near original appearance, a restorative maintenance procedure requires a thorough flushing of soil out of the carpet. Many installations will contract for this type of cleaning rather than invest in too much specialized equipment.

EXTRACTION CLEANING

Extraction cleaning injects the pile with a very hot water/detergent solution under pressure. The machine then immediately extracts the solution along with dirt and grime into a separate holding tank. Manufacturers claim between 70 and 80 percent moisture recovery. Total drying time will vary from 8 to 24 hours.

SET UP YOUR MAINTENANCE PROGRAM WITH HELP FROM MONSANTO

Expert help for setting up a carpet maintenance program for your installation is here waiting for you. Just contact the Contract Carpet Department, Monsanto, 320 Interstate North Parkway, Atlanta, Georgia 30339.

Since the most effective carpet decisions are made when the specifier fully understands the project requirements, the problem for many specifiers would be partly solved if a vehicle existed whereby the relevant details could be assembled in an orderly fashion. One suggested vehicle proposed by Monsanto is completion of a Space Analysis Work Sheet which is available from Monsanto on request. Once the proper information has been assembled, then and only then can a carpet specification be written. Information provided by means of the questionnaire presents the parameters of possible problems and helps define the goals and constraints. With such background, the specifier can write a specification and the manufacturers, based on their respective resources and experience, can submit bids for furnishing and installing the carpet.

For Space Analysis Work Sheets write:
Contract Carpet Department
Monsanto Textiles Company
300 Interstate North Parkway
Atlanta, Georgia 30339 (404) 955-4000

A Monsanto representative will be happy to review your completed work sheet and make fabric recommendations based on your specifications. If you desire such assistance, submit work sheets to the above address.

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